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WHAT IS CLAIMED IS:

1. An isolated and purified nucleic acid molecule that encodes protease D-G protein, said nucleic acid molecule comprising a member selected from a group consisting of:
 - 5 (a) a nucleic acid molecule encoding a protein having at least a 70% identity to a polypeptide comprising amino acids 1 to 435 encoded by SEQ ID NO:2;
 - (b) a nucleic acid molecule encoding a protein having at least a 70% identity to a polypeptide comprising amino acids 1 to 292 encoded by SEQ ID NO:9
 - (b) a nucleic acid molecule which is complementary to either one of the
 - 10 polynucleotides (a) or (b) ;
 - (c) a nucleic acid molecule comprising at least 15 sequential bases of either one of the polynucleotides (a), (b), or (c); and
 - (d) a nucleic acid molecule that hybridizes under stringent conditions to either one of the polynucleotide molecules of (a) or (b).
- 15 2. The nucleic acid molecule of claim 1 wherein the polynucleotide is RNA.
3. The nucleic acid molecule of claim 1 wherein the polynucleotide is DNA.
- 20 4. The isolated and purified nucleic acid molecule of claim 1, having a nucleotide sequence selected from a group consisting of: (SEQ.ID.NO.:1), (SEQ.ID.NO.:8) and functional derivatives thereof.
5. The isolated and purified nucleic acid molecule of claim 1, wherein said nucleic
- 25 acid molecule is genomic DNA.
6. An expression vector for expression of a protease D-G protein in a recombinant host, wherein said vector contains a nucleic acid sequence encoding proteolytically active protease D-G protein and functional derivatives thereof.

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7. The expression vector of claim 6, wherein the expression vector contains a nucleic acid molecule encoding protease D-G protein, having a nucleotide sequence selected from a group consisting of: (SEQ.ID.NO.:1); (SEQ.ID.NO.:8); and functional derivatives thereof.

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8. The expression vector of claim 6, wherein the expression vector contains genomic DNA encoding protease D-G protein.

9. A recombinant host cell containing the expression vector of claim 6.

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10. The recombinant host cell of claim 9, wherein said nucleic acid molecule has a nucleotide sequence selected from a group consisting of: (SEQ.ID.NO.:1); (SEQ.ID.NO.:8); and functional derivatives thereof.

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11. The recombinant host cell of claim 9, wherein said cloned nucleic acid molecule is genomic DNA.

12. A protein, in substantially pure form having protease D-G proteolytic activity.

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13. The protein according to claim 12, having an amino acid sequence selected from a group consisting of: (SEQ.ID.NO.:2), (SEQ.ID.NO.:9) and functional derivatives thereof.

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14. A monospecific antibody immunologically reactive with protease D-G protein.

15. A process for expression of protease D-G protein in a recombinant host cell, comprising:

30 (a) transferring the expression vector of Claim 6 into suitable host cells; and

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(b) culturing the host cells of step (a) under conditions which allow expression of the protease D-G protein from the expression vector.

16. A method to detect test compound modulation of proteolytic activity comprising
5 the steps;

a) incubating a test compound, proteolytically active protease D-G protein, and a labeled substrate for sufficient time to produce a detectable product as a result of proteolytic activity upon the labeled substrate; and

b) measuring a change in the quantity of product as a result of test compound
10 modulation of protease D-G proteolytic activity on the labeled substrate when compared to protease D-G proteolytic activity on the labeled substrate in the absence of test compound.

17. The method of claim 16 wherein the labeled substrates comprises a detectable
15 label selected from a group consisting of a radiolabeled atom, at least one fluorescent molecule, and a colorimetric molecule.

18. The method of claim 17 wherein the substrate is labeled with two fluorescent
20 molecules, and the detectable molecule is detected by fluorescent resonant energy transfer.

19. A compound active in the method of Claim 16, wherein said compound is a modulator of protease D-G proteolytic activity.

20. A compound active in the method of Claim 16, wherein said compound is
25 an agonist or antagonist of protease D-G proteolytic activity.

21. A compound active in the method of Claim 16, wherein said compound is a modulator of expression of protease D-G:

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22. A pharmaceutical composition comprising a compound active in the method of Claim 16, wherein said compound is a modulator of protease D-G proteolytic activity.

- 5 23. A method of treating a patient in need of such treatment for a condition which is mediated by protease D-G, comprising administration of a protease D-G modulating compound active in the method of Claim 16.